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Rapid Electroanalysis of Uric Acid and Ascorbic Acid using a Poly(3,4-ethylenedioxythiophene)-modified Sensor with Application to Milk

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Abstract

Here we present a sensitive and selective electrochemical sensor that has been developed for the analysis of uric acid and ascorbic acid in milk with minimum interference from each other. A conducting polymer, poly(3,4-ethylenedioxythiophene) (PEDOT), was prepared electrochemically as a thin layer on a glassy carbon electrode and then acclimatized to an aqueous buffer before sample analysis. The modified sensor showed an excellent catalytic response towards the oxidation of uric acid, with an anodic peak during cyclic voltammograms at around 350 mV (Ag/AgCl), taken at pH 6.6 as typical of untreated milk samples. A small peak due to ascorbic acid was located close to 0 mV, enabling the